AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.-59. (Canceled)

60. (New) A composite array comprising:

a substrate having a surface;

a first assay location and a second assay location on said surface, said first assay location being separated from said second assay location by a non-permanent sealant;

a first plurality of depressions located within said first assay location and a second plurality of depressions located within said second assay location, wherein said first and second plurality of depressions are configured to contain a single microsphere;

a first population of microspheres comprising a first bioactive agent, said first population of microspheres randomly distributed at said first assay location such that depressions of said first plurality of depressions have a single microsphere from said first population of microspheres associated therewith; and

a second population of microspheres comprising a second bioactive agent, said second population of microspheres randomly distributed at said second assay location such that depressions of said second plurality of depressions have a single microsphere from said second population of microspheres associated therewith.

61. (New) The composite array of claim 60, wherein substantially all the depressions within said first and second assay locations include a microsphere.

62. (New) The composite array of claim 60, wherein each depression of said first plurality of depressions is formed at the end of an optical fiber.

63. (New) The composite array of claim 60, wherein said first population of microspheres is detectable in a first detection channel and said second population of microspheres is detectable in a second detection channel that does not detect the first population of microspheres.

64. (New) The composite array of claim 60, wherein said non-permanent sealant comprises a sealant selected from the group consisting of rubber, silicon, petroleum jelly, wax and parafilm.

65. (New) The composite array of claim 60, wherein said non-permanent sealant comprises a gasket.

66. (New) The composite array of claim 60, wherein said first bioactive agent comprises DNA.

67. (New) The composite array of claim 60, wherein said substrate comprises a microscope slide.

68. (New) The composite array of claim 60, wherein said substrate is enclosed within a hybridization chamber.

69. (New) The composite array of claim 68, wherein said hybridization chamber comprises flexible membranes.

70. (New) The composite array of claim 60, wherein said first and second assay locations are separately enclosed within a first and a second hybridization chamber.

71. (New) A method of making a composite array comprising:

providing a substrate having a surface;

providing a first assay location and a second assay location on said surface, said first assay location being separated from said second assay location by a non-permanent sealant;

forming a first plurality of depressions at said first assay location and forming a second plurality of depressions as said second assay location, wherein said first and second plurality of depressions are configured to contain a single microsphere;

distributing randomly at said first assay location, a first population of microspheres comprising a first bioactive agent such that depressions of said first plurality of depressions have a single microsphere from said first population of microspheres associated therewith; and

distributing randomly at said second assay location, a second population of microspheres comprising a second bioactive agent such that depressions of said second

plurality of depressions have a single microsphere from said second population of microspheres associated therewith.

72. (New) The method of claim 71, wherein substantially all the depressions within said first and second assay locations include a microsphere.

73. (New) The method of claim 71, wherein each depression of said first plurality of depressions is formed at the end of an optical fiber.

74. (New) The method of claim 71, wherein said first population of microspheres is detectable in a first detection channel and said second population of microspheres is detectable in a second detection channel that does not detect the first population of microspheres.

75. (New) The method of claim 71, wherein said non-permanent sealant comprises a sealant selected from the group consisting of rubber, silicon, petroleum jelly, wax and parafilm.

76. (New) The method of claim 71, wherein said non-permanent sealant comprises a gasket.

77. (New) The method of claim 71, wherein said first bioactive agent comprises DNA.

78. (New) The method of claim 71, wherein said substrate comprises a microscope slide.

79. (New) The method of claim 71, wherein said substrate is enclosed within a hybridization chamber.

80. (New) The method of claim 79, wherein said hybridization chamber comprises flexible membranes.

81. (New) The method of claim 71, wherein said first and second assay locations are separately enclosed within a first and a second hybridization chamber.

82. (New) The method of claim 71, wherein said plurality of first depressions is a plurality of wells.

83. (New) A composite array comprising:

a substrate having a surface, said surface having depressions located thereon, wherein every depression on said surface contains either one microsphere or no microsphere;

a first assay location and a second assay location on said surface, said first assay location being separated from said second assay location by a non-permanent sealant;

a first plurality of depressions located within said first assay location and a second plurality of depressions located within said second assay location;

a first population of microspheres comprising a first bioactive agent, said first population of microspheres randomly distributed at said first assay location such that depressions of said first plurality of depressions have a single microsphere from said first population of microspheres contained therein; and

a second population of microspheres comprising a second bioactive agent, said second population of microspheres randomly distributed at said second assay location such that depressions of said second plurality of depressions have a single microsphere from said second population of microspheres contained therein.

84. (New) The composite array of claim 83, wherein substantially all the depressions within said first and second assay locations include a microsphere.

85. (New) The composite array of claim 83, wherein each depression of said first plurality of depressions is formed at the end of an optical fiber.

86. (New) The composite array of claim 83, wherein said first population of microspheres is detectable in a first detection channel and said second population of microspheres is detectable in a second detection channel that does not detect the first population of microspheres.

87. (New) The composite array of claim 83, wherein said non-permanent sealant comprises a sealant selected from the group consisting of rubber, silicon, petroleum jelly, wax and parafilm.

88. (New) The composite array of claim 83, wherein said non-permanent sealant comprises a gasket.

89. (New) The composite array of claim 83, wherein said first bioactive agent comprises DNA.

90. (New) The composite array of claim 83, wherein said substrate comprises a microscope slide.

91. (New) The composite array of claim 83, wherein said substrate is enclosed within a hybridization chamber.

92. (New) The composite array of claim 91, wherein said hybridization chamber comprises flexible membranes.

93. (New) The composite array of claim 83, wherein said first and second assay locations are separately enclosed within a first and a second hybridization chamber.